APPENDICES

Appendix A: Task Force Sponsors and Members

Executive Sponsors

John Thomas Flynn, Director, Department of Information Technology

David Tirapelle, Director, Department of Personnel Administration

Walter Vaughn, Executive Officer, State Personnel Board

Project Sponsors

PK Agarwal, Chief Information Officer, Franchise Tax Board

Gary Darling, Chief Information Officer, Resources Agency

Bob Dell'Agostino, Deputy Director, Department of Information Technology

Task Force Members

Keith Blair, Chief of Special Projects, Department of Insurance

Mike Cuccia, Manager, Applications Development, Department of Justice

Al Duran, Chief Information Officer, Department of General Services

Mary Fite, Information Technology Manager, Franchise Tax Board

Bill Heal, Chief, Administrative Services Division, State Personnel Board

Dan Keller, Manager, Driver License Application Support, Department of Motor Vehicles

Sandra Sales, Personnel Services Consultant, Department of Personnel Administration

Joyce Sanderson, Operations Support Manager, Health and Welfare Data Center

Ted Sorich, Information Systems Manager, Department of Industrial Relations

Dan Sumpter, Chief, Application Development & Maintenance, Department of Transportation

Frank Tanaka, Program Manager, Department of Personnel Administration

Daryll Tsjihara, Division Chief, Employment Development Department

California Research Bureau

Charlene Wear Simmons, Ph.D., Assistant Director

Alicia Bugarin, Senior Policy Analyst

Appendix B: ERI Salary Sampling

Economic Research Institute Data - Sampled Computer-Related Occupations

	Annual Salary (mean)							
Title	San Francisco	Los Angeles	Sacramento	Private Sector Comparison: San Francisco over Sacramento	Equivalent State Band	Band Typical Annual Salary*	State Class	Sacramento Private Sector over CA State IT
Computer Operator	$32,794	$31,278	$29,477	11.3%	1	$24,168	Cmptr Operator	22.0%
Comp Network Technician	$46,337	$44,535	$42,677	8.6%	2	$36,000	IST Spec I	18.5%
Computer Programmer	$49,471	$47,603	$45,731	8.2%	2	$39,588	Prgmr II	15.5%
Systems Analyst	$61,376	$59,442	$57,436	6.9%	3	$47,688	Assoc ISA	20.4%
Database Analyst	$61,710	$59,778	$57,767	6.8%	3	$47,688	Assoc Prgmr Ana	21.1%
Programmer Analyst	$63,229	$61,308	$59,271	6.7%	3	$47,688	Assoc Prgmr Ana	24.3%
Database Administrator	$66,509	$64,611	$62,519	6.4%	4	$52,284	SSS I	19.6%
Computer Network Analyst	$66,935	$65,039	$62,940	6.3%	4	$52,284	SSS I	20.4%
Web Site Coordinator	$68,038	$66,151	$64,033	6.3%	4	$49,902	Staff ISA	28.3%
LAN Administrator	$68,322	$66,436	$64,313	6.2%	4	$52,284	SSS I	23.0%
Systems Analyst Lead	$70,013	$68,139	$65,988	6.1%	4	$52,398	Staff ISA sup	25.9%
Software Design Supervisor	$80,806	$79,008	$76,674	5.4%	4	$52,398	Staff ISA sup	46.3%
			Averages:	**7.1%**				**23.8%**

* average of minimum and maximum for stated classification

Note: ERI data is synthesized from multiple independent salary surveys (over 2000 each year) conducted by many institutions, including the large Federal BLS OES study. ERI data is for base pay only, excluding benefits and bonuses. ERI application automatically trends data to a common date from dates individual surveys were conducted - salaries show are as of 8/27/98.

Appendix C: Civil Service Attrition Statistics

	BAND	Jul-94	Jun-98	Sep	%	Volun 01	Volun %	Jul-94	Jun-95	Sep	%	Volun 01	Volun %	Jul-95	Jun-96	Sep	%	Volun 01	Volun %	Jul-96	Jun-97	Sep	%	Volun 01	Volun %	Jul-97	Jun-98	Sep	%	Volun 01	Volun %
SACRAMENTO	1 - IST	583	523	60	10.3%	20	3.4%	583	560	23	3.9%	9	1.5%	564	551	13	2.3%	5	0.9%	525	505	20	3.8%	9	1.7%	495	479	16	3.2%	6	1.2%
	1.1 - MST	279	244	35	12.5%	11	3.9%	279	273	6	2.2%	3	1.1%	296	287	9	3.0%	3	1.0%	312	303	9	2.9%	4	1.3%	313	307	6	1.9%	4	1.3%
	2 - Prog	743	674	69	9.3%	28	3.8%	743	728	15	2.0%	5	0.7%	732	704	28	3.8%	13	1.8%	719	699	20	2.8%	11	1.5%	742	721	21	2.8%	9	1.2%
	2.1 - SSA	1479	1368	111	7.5%	41	2.8%	1479	1452	27	1.8%	17	1.1%	1623	1586	37	2.3%	20	1.2%	1437	1405	32	2.2%	8	0.6%	1434	1385	49	3.4%	20	1.4%
	3 - APA	1969	1768	201	10.2%	68	**3.5%**	1969	1930	39	2.0%	13	**0.7%**	2182	2126	56	2.6%	25	**1.1%**	2313	2260	53	2.3%	26	**1.1%**	2365	2273	92	3.9%	40	**1.7%**
	3.1 - AGPA	2131	1880	251	11.8%	49	**2.3%**	2131	2072	59	2.8%	12	**0.6%**	2296	2236	60	2.6%	12	**0.5%**	2450	2376	74	3.0%	16	**0.7%**	2586	2501	85	3.3%	18	**0.7%**
	4 - Senior	1186	1031	155	13.1%	32	2.7%	1186	1155	31	2.6%	5	0.4%	1284	1252	32	2.5%	8	0.6%	1358	1311	47	3.5%	14	1.0%	1450	1382	68	4.7%	29	2.0%
	4.1 - SSM I	832	748	84	10.1%	21	2.5%	832	809	23	2.8%	4	0.5%	888	860	28	3.2%	6	0.7%	913	891	22	2.4%	5	0.5%	943	915	28	3.0%	9	1.0%
	5 - DPM II	135	109	26	19.3%	1	0.7%	135	129	6	4.4%		0.0%	142	141	1	0.7%	1	0.7%	166	156	10	6.0%	1	0.6%	182	172	10	5.5%	1	0.5%
	5.1 - SSM III	439	364	75	17.1%	7	1.6%	439	420	19	4.3%	1	0.2%	462	447	15	3.2%	3	0.6%	443	420	23	5.2%	1	0.2%	431	406	25	5.8%	2	0.5%
	All IT	**4616**	**4105**	**511**	**11.1%**	**149**	**3.2%**	**4616**	**4502**	**114**	**2.5%**	**32**	**0.7%**	**4904**	**4774**	**130**	**2.7%**	**52**	**1.1%**	**5081**	**4931**	**150**	**3.0%**	**61**	**1.2%**	**5234**	**5027**	**207**	**4.0%**	**85**	**1.6%**
	All Other	**5160**	**4604**	**556**	**10.8%**	**129**	**2.5%**	**5160**	**5026**	**134**	**2.6%**	**37**	**0.7%**	**5565**	**5416**	**149**	**2.7%**	**44**	**0.8%**	**5555**	**5395**	**160**	**2.9%**	**34**	**0.6%**	**5707**	**5514**	**193**	**3.4%**	**53**	**0.9%**
SAN FRANCISCO	1 - IST	69	62	7	10.1%	4	5.8%	69	67	2	2.9%	1	1.4%	69	67	2	2.9%	1	1.4%	71	69	2	2.8%	1	1.4%	69	68	1	1.4%	1	1.4%
	1.1 - MST	24	23	1	4.2%	0	0.0%	24	24	0	0.0%		0.0%	25	24	1	4.0%		0.0%	27	27	0	0.0%		0.0%	28	28	0	0.0%	0	0.0%
	2 - Prog	54	46	8	14.8%	2	3.7%	54	53	1	1.9%		0.0%	45	44	1	2.2%		0.0%	49	47	2	4.1%	1	2.0%	39	36	3	7.7%	1	2.6%
	2.1 - SSA	43	34	9	20.9%	4	9.3%	43	40	3	7.0%	1	2.3%	34	34	0	0.0%		0.0%	31	28	3	9.7%		0.0%	36	33	3	8.3%	1	2.8%
	3 - APA	145	122	23	15.9%	14	**9.7%**	145	140	5	3.4%	2	**1.4%**	153	147	6	3.9%	4	**2.6%**	145	141	4	2.8%	4	**2.8%**	174	160	14	8.0%	9	**5.2%**
	3.1 - AGPA	26	21	5	19.2%	0	**0.0%**	26	25	1	3.8%		**0.0%**	29	29	0	0.0%		**0.0%**	30	26	4	13.3%		**0.0%**	32	32	0	0.0%	0	**0.0%**
	4 - Senior	40	34	6	15.0%	2	5.0%	40	39	1	2.5%		0.0%	41	40	1	2.4%		0.0%	42	40	2	4.8%	1	2.4%	48	46	2	4.2%	2	4.2%
	4.1 - SSM I	29	26	3	10.3%	0	0.0%	29	27	2	6.9%		0.0%	26	25	1	3.8%		0.0%	29	29	0	0.0%		0.0%	31	31	0	0.0%	0	0.0%
	5 - DPM II	4	3	1	25.0%	0	0.0%	4	4	0	0.0%		0.0%	4	4	0	0.0%		0.0%	4	3	1	25.0%		0.0%	6	6	0	0.0%	0	0.0%
	5.1 - SSM III	14	8	6	42.9%	1	7.1%	14	13	1	7.1%		0.0%	12	10	2	16.7%		0.0%	10	7	3	30.0%	1	10.0%	7	6	1	14.3%	0	0.0%
	All IT	**312**	**267**	**45**	**14.4%**	**22**	**7.1%**	**312**	**303**	**9**	**2.9%**	**3**	**1.0%**	**312**	**302**	**10**	**3.2%**	**5**	**1.6%**	**311**	**300**	**11**	**3.5%**	**7**	**2.3%**	**336**	**316**	**20**	**6.0%**	**13**	**3.9%**
	All Other	**136**	**112**	**24**	**17.6%**	**5**	**3.7%**	**136**	**129**	**7**	**5.1%**	**1**	**0.7%**	**126**	**122**	**4**	**3.2%**	**0**	**0.0%**	**127**	**117**	**10**	**7.9%**	**1**	**0.8%**	**134**	**130**	**4**	**3.0%**	**1**	**0.7%**
LOS ANGELES	1 - IST	29	28	1	3.4%		0.0%	29	29	0	0.0%		0.0%	30	30	0	0.0%		0.0%	29	29	0	0.0%		0.0%	30	29	1	3.3%	1	3.3%
	1.1 - MST	26	24	2	7.7%	1	3.8%	26	25	1	3.8%		0.0%	24	23	1	4.2%	1	4.2%	21	20	1	4.8%	1	4.8%	24	24	0	0.0%		0.0%
	2 - Prog	21	19	2	9.5%	1	4.8%	21	21	0	0.0%		0.0%	22	22	0	0.0%		0.0%	22	21	1	4.5%	1	4.5%	28	26	2	7.1%		0.0%
	2.1 - SSA	66	56	10	15.2%	3	4.5%	66	59	7	10.6%	3	4.5%	49	47	2	4.1%		0.0%	48	47	1	2.1%		0.0%	45	44	1	2.2%		0.0%
	3 - APA	33	25	8	24.2%	4	**12.1%**	33	31	2	6.1%	1	**3.0%**	35	32	3	8.6%	1	**2.9%**	49	48	1	2.0%		**0.0%**	55	51	4	7.3%	3	**5.5%**
	3.1 - AGPA	73	62	11	15.1%	4	**5.5%**	73	70	3	4.1%	2	**2.7%**	82	77	5	6.1%	1	**1.2%**	82	80	2	2.4%		**0.0%**	87	87	0	0.0%		**0.0%**
	4 - Senior	4	4	0	0.0%		0.0%	4	4	0	0.0%		0.0%	4	4	0	0.0%		0.0%	5	5	0	0.0%		0.0%	9	9	0	0.0%		0.0%
	4.1 - SSM I	34	29	5	14.7%		0.0%	34	33	1	2.9%		0.0%	30	30	0	0.0%		0.0%	32	31	1	3.1%	1	3.1%	29	25	4	13.8%		0.0%
	5 - DPM II	1	1	0	0.0%		0.0%	1	1	0	0.0%		0.0%	1	1	0	0.0%		0.0%	1	1	0	0.0%		0.0%	1	1	0	0.0%		0.0%
	5.1 - SSM III	13	9	4	30.8%	1	7.7%	13	13	0	0.0%		0.0%	12	12	0	0.0%		0.0%	15	13	2	13.3%		0.0%	12	12	0	0.0%		0.0%
	All IT	**88**	**77**	**11**	**12.5%**	**5**	**5.7%**	**88**	**86**	**2**	**2.3%**	**1**	**1.1%**	**92**	**89**	**3**	**3.3%**	**1**	**1.1%**	**106**	**104**	**2**	**1.9%**	**1**	**0.9%**	**123**	**116**	**7**	**5.7%**	**4**	**3.3%**
	All Other	**212**	**180**	**32**	**15.1%**	**9**	**4.2%**	**212**	**200**	**12**	**5.7%**	**5**	**2.4%**	**197**	**189**	**8**	**4.1%**	**2**	**1.0%**	**198**	**191**	**7**	**3.5%**	**2**	**1.0%**	**197**	**192**	**5**	**2.5%**	**0**	**0.0%**
OTHER LOCS	1 - IST	87	70	17	19.5%	6	6.9%	87	80	7	8.0%	2	2.3%	87	82	5	5.7%	2	2.3%	94	87	7	7.4%	3	3.2%	90	90	0	0.0%		0.0%
	1.1 - MST	51	42	9	17.6%	2	3.9%	51	51	0	0.0%		0.0%	59	57	2	3.4%		0.0%	55	53	2	3.6%	1	1.8%	71	68	3	4.2%		0.0%
	2 - Prog	68	57	11	16.2%	2	2.9%	68	66	2	2.9%	2	2.9%	65	62	3	4.6%		0.0%	72	69	3	4.2%	1	1.4%	82	79	3	3.7%	1	1.2%
	2.1 - SSA	138	117	21	15.2%	5	3.6%	138	131	7	5.1%	1	0.7%	141	140	1	0.7%		0.0%	150	140	10	6.7%	4	2.7%	184	178	6	3.3%	1	0.5%
	3 - APA	84	74	10	11.9%	4	**4.8%**	84	83	1	1.2%	1	**1.2%**	92	89	3	3.3%	1	**1.1%**	122	118	4	3.3%	2	**1.6%**	157	147	10	6.4%	5	**3.2%**
	3.1 - AGPA	129	110	19	14.7%	3	**2.3%**	129	123	6	4.7%	2	**1.6%**	146	143	3	2.1%		**0.0%**	182	175	7	3.8%	3	**1.6%**	200	193	7	3.5%		**0.0%**
	4 - Senior	24	17	7	29.2%	1	4.2%	24	22	2	8.3%		0.0%	24	22	2	8.3%		0.0%	27	26	1	3.7%		0.0%	28	25	3	10.7%	2	7.1%
	4.1 - SSM I	88	70	18	20.5%	4	4.5%	88	86	2	2.3%		0.0%	83	79	4	4.8%		0.0%	79	75	4	5.1%	1	1.3%	83	78	5	6.0%	3	3.6%
	5 - DPM II	1	1	0	0.0%		0.0%	1	1	0	0.0%		0.0%	1	1	0	0.0%		0.0%	1	1	0	0.0%		0.0%	2	2	0	0.0%		0.0%
	5.1 - SSM III	27	23	4	14.8%		0.0%	27	25	2	7.4%		0.0%	24	24	0	0.0%		0.0%	28	28	0	0.0%		0.0%	21	18	3	14.3%	1	4.8%
	All IT	**264**	**219**	**45**	**17.0%**	**13**	**4.9%**	**264**	**252**	**12**	**4.5%**	**5**	**1.9%**	**269**	**256**	**13**	**4.8%**	**3**	**1.1%**	**316**	**301**	**15**	**4.7%**	**6**	**1.9%**	**359**	**343**	**16**	**4.5%**	**8**	**2.2%**
	All Other	**433**	**362**	**71**	**16.4%**	**14**	**3.2%**	**433**	**416**	**17**	**3.9%**	**3**	**0.7%**	**453**	**443**	**10**	**2.2%**	**0**	**0.0%**	**494**	**471**	**23**	**4.7%**	**9**	**1.8%**	**559**	**535**	**24**	**4.3%**	**5**	**0.9%**
ALL Locations																															
	All IT	**5280**	**4668**	**612**	**11.6%**	**189**	**3.6%**	**5280**	**5143**	**137**	**2.6%**	**41**	**0.8%**	**5577**	**5421**	**156**	**2.8%**	**61**	**1.1%**	**5814**	**5636**	**178**	**3.1%**	**75**	**1.3%**	**6052**	**5802**	**250**	**4.1%**	**110**	**1.8%**
	All Other	**5941**	**5258**	**683**	**11.5%**	**157**	**2.6%**	**5941**	**5771**	**170**	**2.9%**	**46**	**0.8%**	**6341**	**6170**	**171**	**2.7%**	**46**	**0.7%**	**6374**	**6174**	**200**	**3.1%**	**46**	**0.7%**	**6597**	**6371**	**226**	**3.4%**	**59**	**0.9%**

SEPARATION CODES: 01 Voluntary Resignation; 21 Automatic Resignation AWOL; 31 Termination without Fault; 41 Dismissal; 70 Retirement Voluntary or Compulsory; 71 Disability Retirement; 90 Rejected during Probation; 95 Death

BANDS: 1-Info Sys Tech, Cmptr Operator; 1.1-Mgmt Srv Tech; 2-Prgmr I & II, Asst ISA, IST spec/sup I, Cmptr Op spec/sup I; 2.1-Staff Srvs Analy; 3-IST spec/sup II, CO spec/sup II, Assoc ISA spec/sup, Assoc Prgmr Analy spec/sup, 4- Staff ISA spec/sup, Staff Prgmr Analy spec/sup, DPM I & II, SSS I tech/sup, Senior ISA spec/sup, Senior Prgmr Analy spec/sup, SSS II Tech; 4.1-Staff Srvs Mgr I; 5-SSS II & III, DPM III, SSS III, DPM IV 5.1- Staff Srvs Mgr

COMMENTS: While total separation rates are fairly low, note that VOLUNTARY Informations Systems separation rates are ALL higher than the General classifications, 40% higher during the 4 year period, and 100% higher dur In Addition, voluntary IT separation rates are HIGHER in San francisco than anywhere else, More than DOUBLE those in Sacramento, and the highest Voluntary rates are for IT Classes in SAN FRANCISCO

*** Note: In some cases, Separation Breakout Totals do not equal total separations because rare separation codes have been omitted.**

Appendix D: Employee Count By Classification

Classification Title	Class Code	Schem. Code	Number of Employees	Top Step Monthly Salary	Salary Increase Cost (1 yr.)
Assistant Information Systems Analyst	1479	LM96	528	2,611	2,123,828
Associate Information Systems Analyst (Specialist)	1470	LM92	1545	4,346	10,344,198
Associate Information Systems Analyst (Supervisor)	1471	LM90	34	4,346	227,639
Associate Program Systems Analyst	7737	LM46	8	4,346	53,562
Associate Programmer Analyst (Specialist)	1579	LM20	986	4,346	6,601,540
Associate Programmer Analyst (Supervisor)	1580	LM18	2	4,346	13,391
Associate Systems Software Specialist (Technical)	1585	LM62	73	4,337	487,743
Chief, Information Systems, State Controller's Off	9014	LK12	1	7,747	11,935
Computer Operations Specialist I	1560	LN25	36	3,275	181,632
Computer Operations Specialist II	1561	LN15	10	3,949	60,837
Computer Operations Supervisor I	1351	LN20	22	3,439	116,556
Computer Operations Supervisor II	1350	LN10	18	4,147	114,997
Computer Operator	1353	LN40	191	2,094	616,153
Data Processing Manager I	1381	LK31	160	4,775	1,176,988
Data Processing Manager II	1384	LK21	167	5,244	1,349,142
Data Processing Manager III	1393	LK15	113	5,824	1,013,861
Data Processing Manager IV	1387	LK11	4	6,404	39,463
Health And Welfare Agency Data Center Manager	1556	LM67	10	5,824	89,722
Health And Welfare Agency Data Center Supervisor I	1538	LM63	2	3,439	10,596
Health And Welfare Agency Data Center Supervisor II	1539	LM64	2	4,147	12,777
Health And Welfare Agency Data Center Supervisor III	1554	LM65	6	4,775	44,137
Health And Welfare Agency Data Center Supervisor IV	1555	LM66	12	5,244	96,944
Information Systems Manager	9448	ZZ38	10	5,824	89,722
Information Systems Supervisor II	9445	ZZ32	3	4,147	19,166
Information Systems Supervisor III	9446	ZZ34	6	4,775	44,137
Information Systems Supervisor IV	9447	ZZ36	5	5,244	40,393
Information Systems Supervisor, California Postsec	1366	LK33	1	5,244	8,079
Information Systems Technician	1360	LN48	397	2,094	1,280,695
Information Systems Technician Specialist I	1562	LN45	125	3,275	630,667
Information Systems Technician Specialist II	1557	LN43	40	3,949	243,347
Information Systems Technician Supervisor I	1408	LN44	25	3,439	132,450
Information Systems Technician Supervisor II	1407	LN42	16	4,147	102,219
Information Technician I	1568	LN30	17	2,094	54,841
	9452	ZZ46	22	2,094	70,971
Information Technician II	1569	LN35	19	3,275	95,861
	9453	ZZ48	6	3,275	30,272
Information Technology Specialist I	1365	LM05	158	2,611	635,540
	9449	ZZ40	199	2,611	800,458
Information Technology Specialist II	1369	LM06	49	5,242	395,705
	9450	ZZ42	20	5,242	161,512
Information Technology Specialist III	1370	LM07	8	5,760	70,989
	9451	ZZ44	8	5,760	70,989
Programmer I	1382	LM34	61	2,611	245,367
Programmer II	1383	LM30	92	3,602	510,517
Senior Information Systems Analyst (Specialist)	1337	LM82	78	4,994	600,097
Senior Information Systems Analyst (Supervisor)	1340	LM70	30	5,244	242,361
Senior Program Systems Analyst (Supervisor)	7741	LM38	2	5,244	16,157
Senior Programmer Analyst (Specialist)	1583	LM12	70	4,994	538,549
Senior Programmer Analyst (Supervisor)	1584	LM10	47	5,244	379,699
Staff Information Systems Analyst (Specialist)	1312	LM86	341	4,547	2,388,680
Staff Information Systems Analyst (Supervisor)	1316	LM84	51	4,775	375,165
Staff Program Systems Analyst (Specialist)	7738	LM44	5	4,547	35,025
Staff Program Systems Analyst (Supervisor)	7739	LM42	2	4,775	14,712
Staff Programmer Analyst (Specialist)	1581	LM16	322	4,547	2,255,586
Staff Programmer Analyst (Supervisor)	1582	LM14	41	4,775	301,603
Systems Software Specialist I (Supervisory)	1588	LM61	2	4,765	14,682
Systems Software Specialist I (Technical)	1587	LM60	217	4,765	1,592,947
Systems Software Specialist II (Supervisory)	1558	LM58	9	5,242	72,681
Systems Software Specialist II (Technical)	1373	LM55	126	5,242	1,017,528
Systems Software Specialist III (Supervisory)	1559	LM52	17	5,760	150,852
Systems Software Specialist III (Technical)	1367	LM50	39	5,760	346,071
Totals:	**61**	**Classes**	**6616**	**Employees**	**$ 40,863,932**

Notes: Salary Increase Amount is calculated by assuming that 80% of incumbents are at top step and 20% of incumbents are 10% below top step. The increase amount is based on a 10% salary increase for a full fiscal year and include an additional 31% of the increase amount for benefits. Number of classes and employees extracted from SCO data as of 8/28/98, salaries from SPB data.

Source: State Controllers Data - SWIRS Report, August 28, 1998 Run by: D. Combies, CCD

Appendix E: CalTrans Marketing Brochure

Appendix F: Task Force Survey Results

The State of California IT Recruitment & Retention Task Force developed a two-part survey in order to collect data on current state recruitment and retention practices. This survey was designed to obtain a representative sampling from both large and small state agencies.

Part I of the Task Force Survey was a 46-item questionnaire eliciting responses from state IT managers on issues including Compensation, Employee Selection, Job Classifications, Professional Development, and Marketing as they relate to IT recruitment and retention. These questions covered issues such as the impact of IT turnover and vacancies, overtime costs incurred during fiscal year 1997-98, the use of external contractors, IT training expenditures, and employee selection practices.

Part II of the Task Force Survey was a 'Skill Set Matrix' which was designed to collect statistical data by specific skill set categories. The skills were categorized, quantified, and rated regarding degree of criticality, percent of knowledge lost due to turnover, and the magnitude of recruitment and retention problems. The matrix was also designed to identify the reasons why IT employees left positions and why positions remained vacant. In addition, the Skill Set Matrix collected information on the total number of IT positions, the number of IT vacancies, the number of Student Assistants performing IT work, and the number of underqualified staff in IT positions within state agencies.

The Task Force Survey was sent to 37 separate Chief Information Officers (CIOs) within the State of California. Twenty-five (25) completed surveys were received in time to compile and analyze the data for this report. As a result, the analysis in this report is based upon a 68 percent response rate to the Task Force Survey.

The departments that completed and returned surveys in time for this analysis included:

Department of Transportation
California Highway Patrol
Department of Corrections
California Youth Authority
Department of General Services
Department of Industrial Relations
Department of Motor Vehicles
Department of Justice
Department of Personnel Administration
Department of Water Resources
Employment Development Department
Department of Fish & Game
Franchise Tax Board
Department of Insurance
California State Lottery Commission
Public Employee's Retirement System
Peace Officers Standards and Training
Public Utilities Commission
State Compensation Insurance Fund
State Personnel Board
State Treasurer's Office
State Water Resources Control Board
Teale Data Center
Department of Toxic Substances
Department of Veteran Affairs

The survey results in this report are represented in aggregate form in order to maintain the confidentiality of individual departments.

Summary of Task Force Survey

1. What public services needs are being adversely impacted due to the lack of qualified IT resources?

   Most frequent answers: Supplying current and updated information to the both the public and private sectors (e.g. safety, emergency, traffic, data security, Internet use, benefits, training, open positions, and exams)

2. Describe what operational objectives have been adversely impacted due to IT recruitment and retention problems in the following areas:

   Most frequent answers: Delayed IT project delivery. Insufficiently trained staff. Project costs escalated due to need to hire contract labor. Quality of response time to public and private needs and inquiries.

3. In the following grid, please provide the total dollars your department spent on IT staff overtime and dollars spent on the use of contractors to augment state staff for Fiscal Year 1996 / 1997 and fiscal year 1997 / 1998. In addition, please provide the person year equivalent (PYE) numbers associated with the IT contractor staff for each fiscal year.

Dollars spent on Contractor IT staff

	Fiscal Year 1996/1997				**Fiscal Year 1997/1998**			
Category	***OT***	***Use***	***Use%***	***PYE***	***OT***	***Use***	***Use%***	***PYE***
Application Programming	$970,439	$12,401,669	50.70%	90.84	$1,429,838	$36,080,221	67.00%	261.075
Client Technical Support	$283,010	$2,325,885	9.51%	11.69	$491,380	$5,092,296	9.46%	17.23
Computer Operations / Data	$513,610	$533,134	2.18%	10.7	$433,938	$281,698	0.52%	2
Database Management	$263,598	$1,130,943	4.62%	4.2	$250,758	$1,801,528	3.35%	8
Internet	$18,890	$15,000	0.06%	0.05	$23,543	$267,953	0.50%	4.57
Management	$53,078	$2,010,030	8.22%	21.15	$101,003	$2,128,835	3.95%	16.37
Network Administration	$589,474	$2,116,949	8.65%	23.62	$740,756	$3,323,746	6.17%	33.81
Operating System Support	$388,024	$569,462	2.33%	2.27	$580,403	$2,254,578	4.19%	27.5
Other	$565,836	$1,430,863	5.85%	6.4	$508,057	$866,258	1.61%	3.67
Other (Analysis)		$206,000	0.84%	4				
Other (CAD/WAN Support)	$48,290				$14,628			
Other (Clerical Support)	$1,563				$666			
Other (Enterprise Plan Dev)						$54,000	0.10%	1
Other (IT Procurement)	$20,000				$10,000			
Other (RFP/Procurement)		$323,038	1.32%	3		$172,334	0.32%	1.25
Telecommunications	$429,612	$982,252	4.02%	14.09	$461,586	$1,205,694	2.24%	12.53
Training	$2,480	$416,664	1.70%	0.8	$3,972	$322,338	0.60%	7.45
Grand:Total:	$4,147,904	$24,461,889		192.81	$5,050,528	$53,851,479		396.46

**Refer to Skill Set Matrix for examples of the skill sets for each of the listed categories.*
Note: Figures above do include some Year 2000 project expenses.
Explanation of terms: OT = Overtime, Use = Use of Contractors to augment State staff. PYE = Person Years Equivalent.

4. What type of marketing materials / media are you currently using to assist in IT recruitment?

   Advertising done as follows: Internet, local newspapers, State publications, Job Fairs, Colleges, VPOS, and flyers.

5. Is your department conducting marketing outreach to the following?

Colleges/ Universities (yes/no)	**Technical Schools (yes/no)**	**Job Fairs (yes/no)**	**Other (describe)**
Yes=34.6%, No=65.4%	Yes=7.7%, No=92.3	Yes=34.6, No=65.4%	96.2 = N/A

6. The communication between the IT organization and Human Resources is adequate to support the recruitment of qualified candidates?

   YES = 46.2%, **NO = 53.8%**

7. Is your IT organization successful at matching IT candidates with the job requirements?

   YES = 42.3%, **NO = 57.7%**

8. Have you identified a "rich" source of IT candidates, but have not been able to recruit from it due to hiring barriers? If so, what are the sources and the barriers encountered?

YES = 65.4%, NO = 34.6%

Most frequent answers: College graduates, University graduates, consultants, and contractors are the best 'rich source' available. Have not been able to successfully recruit due to poor pay, exam and classification structure, and 'not on a list'.

9. Does the current classification structure inhibit your ability to hire and retain qualified IT staff?

YES = 92.3%, NO = 7.7%

Most frequent answers: Yes, pay scale is low, qualifications too rigid and out dated (MQs) and too many classifications, and not a clearly defined career path inhibit departments ability to hire and retain IT staff.

10. Are you participating in any alternative Human Resources programs (e.g. Broad-banding, Management Demonstration program, position specific selection

YES = 38.5%, **NO = 61.5%**

11. Do you have ideas for additional alternative HR programs?

YES = 73.1%, NO = 26.9%

Most frequent answers: Expedite the exam process, making it easier and quicker to hire, offer incentives and bonuses to highly skilled and certified staff and candidates, and consider a 'just in time' or 'on the spot' hiring capability.

12. Do you have methods for determining that candidate's skills match the job requirements (e.g. skills assessment, aptitude/behavioral tests)?

YES = 73.1%, NO = 26.9%

Most frequent answers: Technical questions and oral interviews.

13. Do you feel additional tools/techniques would assist you?

YES = 57.7%, NO = 42.3%

Most frequent answers: Make standardized aptitude and technical skills tests available to the hiring departments.

14. Do you conduct centralized (statewide) IT exam processes? If yes, please list job classifications.

YES = 30.8%, **NO = 69.2%**

Most frequent answers: Yes, AISA and APA

15. Do you participate in a cooperative (multi-departmental) IT exam process?

YES = 57. 7 %, NO = 42.3%

Most frequent answers: Yes**,** AISA and Programmer Analyst.

16. Do you conduct independent IT exam processes?

YES = 80.8%, NO = 19.2%

Most frequent answers: Yes, AISA, Programmer all levels, and System Technicians.

17. What is the typical elapsed time (calendar days) for IT exams from bulletin release to list release? (Please do not include demonstration exam projects in your response.)

	Less than or equal 30 days	31 – 60 days	61 – 90 days	91 - 120 days	More than 120 days	N/A	Blank
Open	5.4 %	2.7 %	**13.5 %**	10.8 %	5.4 %	10.8 %	51.4%
Promotional	2.7 %	13.5 %	**24.3 %**	8.1 %	8.1 %	0%	43.2 %

18. For demonstration projects, what is the typical elapsed time (calendar days) for IT exams from bulletin release to list release?

	Less than or equal 30 days	31 – 60 days	61 – 90 days	91 - 120 days	More than 120 days	N / A	Blank
Open	**5.4 %**	2.7 %	0%	0%	0%	2.7 %	89.2 %
Promotional	0%	**5.4 %**	**5.4 %**	0%	0%	2.7 %	86.5 %

19. On the average, how long (calendar days) does it take to fill your vacant IT positions in each of the following Job categories? Time should be based from the point you initiate a request to the point the candidate is on board.

Average # of days to fill vacant IT Positions

Category	*Avg Days To Fill Pos*	*Median Days To Fill Pos*
Application Programming	113	90
Client Technical Support	75	75
Computer Operations / Data Guidance	63	60
Database Management	105	90
Internet	106	90
Management	105	100
Network Administration	112	90
Operating System Support	99	90
Other (Analysis)	37	18.5
Other (Clerical Support)	150	75
Other (GIS)	150	75
Other (IT Procurement)	90	45
Other (Publications)	60	30
Other (Strategic Planning)	100	50
Telecommunications	110	90
Training	70	60

Total Average: **97.87317**

WEIGHTED AVERAGE = 98 days to fill vacant IT Positions over 25 departments

20. In the past 3 years have you conducted continuous testing / filing for <u>open</u> IT exams?

	Yes	No	Job Classifications
a. Testing	24%	**76%**	Programmer Analysts and Internet
b. Filing	24%	**76%**	Programmer Analysts, DPMIII, and Internet

21. In the past 3 years have you conducted continuous testing / filing for <u>promotional</u> IT exams?

	Yes	No	Job Classifications
a. Testing	20 %	**80%**	Programmers, ISA, and DP Manager I, II, III
b. Filing	16%	**84%**	Programmers and DP Manager I, II, III

22. Please estimate your average training expenditures per IT employee for the 1997 / 1998 fiscal year?

$0 to $500	$500 to $750	$750 to $1,000	$1,000 to $1,250	$1,250 to $1,500	$1,500 to $1,750	$1,750 to $2,000	$2,000 to $2,500	$2,500 or greater
8.0 %	4.0 %	12.0 %	**24.0 %**	16.0 %	4.0 %	16.0 %	4.0 %	12.0 %

23. How much are you spending on training expressed as a percentage of IT payroll?

WEIGHTED AVERAGE = 2.92 for 3,330 Employees / over 25 departments

Adequate Inadequate

24.	The amount of training provided to department IT staff is:	24.0 %	**76.0 %**
25.	The availability and convenience of training vendors in the core technologies are:	**76.0 %**	24.0 %

26. Select the percentage of occasions you must send your staff out of town (on travel status) for training.

Never	0%-10%	11-20%	21-30%	31-40%	Greater than 40%
	24.0 %	24.0 %	24.0 %	16.0 %	12.0 %

27. Has your department been able to transition Student Assistants into permanent civil service IT jobs?

YES = 20.0 %, **NO = 80.0 %**

Most frequent answers: NO, because the salaries are not competitive or not on list***.***

28. Has your department had a problem recruiting and retaining Student Assistants.

YES = 64.0%, NO = 36.0 %

Most frequent answers:- Yes***,*** pay scale is low, and the ability to schedule and exam or get them on a list.

29. Please rank, on a scale of 1 through 5, which of the following IT management training needs you have the most difficulty satisfying? (Rank 1-most difficult - 5 least difficult).

Technical Knowledge	Administrative Management (e.g. Budgets)	People Management Skills (e.g. Performance Appraisal)	Project Management	Customer Service
# 2 (2.32)	# 4 (3.52)	# 3 (3.40)	# 1 (2.16)	# 5 (3.56)

Note: Rankings listed 1= most difficult with 5= least difficult; weighted average is in ( )s.

30. Are performance expectations consistently set for IT employees?

YES = 24.0%, **NO = 76.0%**

Most frequent answers: NO, inconsistent priorities and expectations***.***

31. Do your department IT managers consistently evaluate employee performance and career development?

YES = 44.0%, **NO = 56.0%**

Most frequent answers: Performance appraisals are consistently given annually, but supervisors do not consistently review career path with staff***.***

32. What tools (annual development plan, assessment form, etc.) do your department IT Managers use to evaluate employee performance and career development?

Most frequent answers: (all responses were unanimous)***:-*** Annual performance appraisals and probationary reports for new employees.

33. For the categories listed below, please rank only the top 6 in each category that you believe would help the State's recruitment and retention efforts(1-most important - 6-least important).

Category	Top 6 Ranking (1 most important – 6 least important)	
	Recruitment	Retention
Equitable Base Pay	***# 1***	***# 1***
Flexible Compensation (e.g. Bonus & Benefits)	***# 2***	***# 4***
Promotional Opportunities	***# 3***	***# 3***
State of the Art Technology	***# 4***	# 7
Department's Reputation for Success	***# 5***	# 14
Location	***# 6***	# 13
Recognition	# 7	# 11
Interesting Program Area	# 8	***# 5***
Clear Leadership & Strategic Direction	# 9	***# 6***
Adequate Staffing	# 10	# 8
Quality of Work Environment	# 11	# 9
Training and Learning	# 12	# 12
Employee-Centric Management	# 13	***# 2***
Regular & Open Communication	N/A	# 10
Employee Satisfaction Survey	N/A	N/A
Employee Wellness Program	N/A	N/A

34 - 43. The following questions are designed to collect your feedback regarding preliminary task force ideas. In the event that you disagree or strongly disagree with an idea, please provide reasons in the comments section below questions 34 through 43.

	Statement	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
34.	A guideline should be established for annual training dollars to be spent on each IT employee.	20.0 %	**56.0 %**	16.0 %	8.0 %	0 %
35.	There should be a centralized funding source for IT training in core technologies as recommended by the IT Coordination Council (ITCC).	16.0 %	12.0 %	**44.0 %**	12.0 %	16.0%
36.	There should be a state supported "IT College", in strategically geographic locations.	20.0 %	**52.0 %**	20.0 %	4.0 %	4.0 %
37.	In addition to vendor training, there should be a state supported "IT College" offering certification programs in core technologies.	20.0 %	**68.0 %**	8.0 %	4.0 %	0 %
38.	The state should set up a "MSA"-like contract with vendors to supply core technology training at a group rate.	40.0 %	**44.0 %**	16.0 %	0%	0%
39.	There should be a requirement for employees receiving state funded certification to work for the state for a period of time (to be determined) or to repay costs for certification.	36.0 %	**40.0 %**	12.0 %	12.0 %	0%
40.	There should be a policy that all IT Managers attend continuing education classes.	28.0 %	**64.0 %**	8.0 %	0%	0%
41.	There should be a central recruitment function that markets state IT employment, recruits the most qualified candidates based on specific departmental job openings that makes the results available to departments for a hiring interview. (Filling the role of a private recruitment agency.)	24.0 %	**52.0 %**	8.0 %	4.0 %	12.0 %
42.	To effectively market state IT jobs, departments should have the opportunity to make all job vacancies available to be accessed through a central database via the Internet.	36.0 %	**60.0 %**	4.0 %	0%	0%
43.	The state should develop a bonus program (e.g. hiring, skills acquisition, etc.) to recruit and retain employees.	**60.0 %**	28.0 %	12.0 %	0%	0%

44 - 46. The following questions are designed to collect your feedback regarding preliminary task force ideas. In the event that you disagree or strongly disagree with an idea, please provide reasons in the comments section below questions 44 through 46.

		Yes	No
44.	Does your department support centralized testing for IT classifications?	**92.0 %**	8.0 %
45.	Would your department support minimum qualifications to classification based upon skill and time versus experience and education?	**84.0 %**	16.0 %
46.	Would your department favor open testing for IT classifications?	**96.0 %**	4.0 %

Skills Matrix Data (Part II)

Percentage of IT Vacancies By Skill

Category	*# IT Pos*	*# of Pos Vacant*	*% Vac for skill*	*% Vac Overall*
Application Programming	929	209	22.50%	31.71%
Management	425	94	22.12%	14.26%
Network Administration	355	80	22.54%	12.14%
Client Technical Support	417	73	17.51%	11.08%
Operating System Support	378	63	16.67%	9.56%
Computer Operations / Data Guidance	318	55	17.30%	8.35%
Telecommunications	164	35	21.34%	5.31%
Database Management	222	32	14.41%	4.86%
Internet	91	15	16.48%	2.28%
Training	31	3	9.68%	0.46%
Grand Total:	***3330***	***659***		

Above matrix shows the number of vacancies represented as: 1) total number of IT positions for that particular skill category(# IT Pos), 2) number of vacant positions for that particular skill category(# Pos vacant), 3) percentage of total vacancies for that particular skill (% Vac for skill), and 4) percentage of total IT positions vacant (% Vac overall). Note: The number of positions vacant represent the number of budgeted IT positions that became vacant at any time during fiscal 1997-98. Therefore, if a position became vacant more than once during the year, the number represents the number of times it became vacant.

Percentage of Underqualified Staff by Skill Category

Category	*# IT Pos*	*# of Pos Vacant*	*# of Student*	*# of Pos Filled*	*% of UnQualified Pos Filled*
Application	929	209	14	55	***5.92%***
Client Technical Support	417	73	53	24	***5.76%***
Computer Operations /	318	55	14	13	***4.09%***
Database Management	222	32	6	6	***2.70%***
Internet	91	15	19	4	***4.40%***
Management	425	94	25	27	***6.35%***
Network Administration	355	80	28	19	***5.35%***
Operating System	378	63	36	19	***5.03%***
Telecommunications	164	35	5	4	***2.44%***
Training	31	3	4	3	***9.68%***
Grand Total;	***3330***	***659***	***204***	***174***	***5.23%***

Above matrix shows the number of vacancies represented as: 1) total number of IT positions for that particular skill category(# IT Pos), 2) number of vacant positions for that particular skill category(# Pos vacant), 3) number of student positions filled for that particular skill category (# of Student), 4)) number of positions filled by under qualified staff for that particular skill category (# of Pos Filled), 5) and percentage of total IT positions for that particular skill category that are filled by under qualified staff.

Recruitment Difficulty Skills (Top 25)

Recruitment Difficulty

Skill	*1*	*2*	*3*
ORACLE	26	9	
Windows NT	21	20	1
Email Software	19	11	1
Other (Sequel Server)	19	11	1
Other (Data Warehouse)	17	6	
Security	17	6	
Other (Lotus Notes)	16	7	1
Other (Delphi)	15	2	
UNIX	15	2	
Hardware	14	7	1
Technical Leads/Analysts	14	7	1
Data Network Infrastructure	13	5	
Other (ABAP)	13	6	
Other (AS/400)	13	6	
Project Management	13	6	2
TCP/IP	13	7	
Other (Data Administration)	12	9	1
Novell Netware	10	7	1
Other (Turbo Image)	10	7	1
COBOL	9	5	2
Desktop Support	9	10	3
NATURAL	9	3	1
Other (Ingres)	9	2	1
Other (Web/Internet dev)	9	11	
PowerBuilder	8	2	
ADABAS	7	5	1

Recruitment 'Degree of Problem': 1= Difficulty, 2= Moderate, 3= Easy

Retention Difficulty Skills (Top 25)

Retention Difficulty

Skill	*1*	*2*	*3*
ORACLE	24	12	3
Windows NT	17	22	7
Other (ABAP)	13	6	2
Other (AS/400)	13	6	2
Data Network Infrastructure	12	6	3
Other (Delphi)	12	6	1
UNIX	12	6	1
Technical Leads/Analysts	11	9	2
Email Software	10	19	3
Other (Data Warehouse)	10	13	1
Other (Lotus Notes)	10	15	1
Other (Sequel Server)	10	19	3
Security	10	13	1
Other (Web/Internet dev)	9	9	5
Project Management	9	10	3
Hardware	8	15	1
Other (Data Administration)	8	13	2
Desktop Support	7	11	4
HTML	7	9	5
TCP/IP	7	11	3
ADABAS	6	6	1
JAVA	6	4	3
Other (4D)	6	6	1
Other (Guardian 90)	6	6	1
Voice Network Infrastructure	6	7	3

Retention 'Degree of Problem': 1= Difficulty, 2= Moderate, 3= Easy

Skill Matrix

Category	*Skill*	*# IT*	*# of Pos*	*# of Student*	*# of Pos Filled*	*# of UnQualified*
Application	C++	39	5		2	***5.13%***
	COBOL	431	94	3	8	***1.86%***
	MS Access	53	7	5	5	***9.43%***
	NATURAL	76	22		1	***1.32%***
	ORACLE	115	38		28	***24.35%***
	Other (4D)	2				
	Other (ABAP)	4				
	Other (Analysis)	5	1			
	Other (ARC INFO)	18	4		1	***5.56%***
	Other (Assembler)	31	7		1	***3.23%***
	Other (C)	3	1			
	Other (CICS)	7				
	Other (Delphi)	3	1			
	Other (EDL)	17	3		1	***5.88%***
	Other (FORTRAN)	6				
	Other (Informix)	1				
	Other (Ingres)	20	1			
	Other (Lotus Notes)				1	
	Other (Object Analysis & Dev)	1				
	Other (PL1)	8	4			
	Other (PowerHouse)	1	5			
	Other (RAMIS)					
	Other (REXX)	1				
	Other (SAS)					
	Other (SQL)	2	2		1	***50.00%***
	Other (Web/Internet dev)	1				
	PowerBuilder	29	4	1	1	***3.45%***
	Visual Basic	55	10	5	5	***9.09%***
	Category Total;	***929***	***209***	***14***	***55***	***5.92%***
Client Technical Support	Desktop Support	194	40	30	12	***6.19%***
	Help Desk	209	32	21	12	***5.74%***
	Other (Facilities)	1				
	Other (Mainframe Support)	3				
	Other (PC Support)	10	1	2		
	Category Total;	***417***	***73***	***53***	***24***	***5.76%***
Computer Operations /	Computer Operators	231	38	12	8	***3.46%***
	Other (AISA)	2				
	Other (Analysts)	1				
	Other (Data Guidance)	47	7		3	***6.38%***
	Other (Data Pad)					
	Other (IST)	32	9	2	2	***6.25%***
	Other (Key Data Entry)	5	1			
	Category Total;	***318***	***55***	***14***	***13***	***4.09%***
Database Management	ADABAS	25	5			
	CLIPPER	14	2	1		
	DB2	41				
	DBASE	5				
	FoxPro	10	1	2	1	***10.00%***
	Informix	11	3		1	***9.09%***
	MAPPER	13	1			
	ORACLE	45	9		2	***4.44%***
	Other (Data Administration)	2		1		
	Other (Data Warehouse)	4	1			
	Other (Filemaker)	3		2		
	Other (IDMS)	8				
	Other (Ingres)	4				
	Other (Lotus Notes)					
	Other (Sequel Server)	8	1		1	***12.50%***
	Other (Turbo Image)	4	5			
	Other (VSAM - RTC/FCO)	2	1			
	SAS	12	1		1	***8.33%***

Category	Skill	# IT	# of Pos	# of Student	# of Pos Filled	# of UnQualified
Database Management	Sybase	11	2			
	Category Total;	***222***	***32***	***6***	***6***	***2.70%***
Internet	HTML	50	7	12	2	***4.00%***
	JAVA	15	4	6		
	Middleware	1		1		
	Other (Active X)					
	Other (Web Server)					
	TCP/IP	25	4		2	***8.00%***
	Category Total;	***91***	***15***	***19***	***4***	***4.40%***
Management	Other (Adm)	15	4			
	Other (Asset Mgmt)	5	2			
	Other (Bugets/Contracts)	17	8	1		
	Other (Data Processing Mgr)	39	4		3	***7.69%***
	Project Management	142	32		14	***9.86%***
	Technical Leads/Analysts	207	44	24	10	***4.83%***
	Category Total;	***425***	***94***	***25***	***27***	***6.35%***
Network Administration	Email Software	57	7	7	3	***5.26%***
	Hardware	45	13	7	4	***8.89%***
	Novell Netware	77	17	2	3	***3.90%***
	Other (Banyan Vines)	6	1			
	Other (HP Network)	4	5			
	Other (RACF)	2				
	Other (TCP/IP)	26	7	10		
	Other (Traffic Mgt software)	2			1	***50.00%***
	Security	41	4		4	***9.76%***
	Windows NT	95	26	2	4	***4.21%***
	Category Total;	***355***	***80***	***28***	***19***	***5.35%***
Operating System	DOS	21	2	5	1	***4.76%***
	MVS	68	15			
	Other (AIX)	1				
	Other (AS/400)	2	1			
	Other (BASIS)	2				
	Other (CICS)	6	2			
	Other (Guardian 90)	2				
	Other (HP/MPE)	12	2			
	Other (Macintosh)	4		2		
	Other (Novell Netware)	15	3			
	Other (OS2)	1				
	Other (VOS)	1				
	Other (Windows 3.1)	1				
	Unisys	28	3			
	UNIX	56	8		3	***5.36%***
	VMS	15	6			
	Windows 95	70	10	16	7	***10.00%***
	Windows NT	73	11	13	8	***10.96%***
	Category Total;	***378***	***63***	***36***	***19***	***5.03%***
Telecommunications	Data Network Infrastructure	84	15	1	2	***2.38%***
	Other (Telemetry)	2	1			
	Other (Telephone)	5	5			
	Voice Network Infrastructure	73	14	4	2	***2.74%***
	Category Total;	***164***	***35***	***5***	***4***	***2.44%***
Training	Other (Publications)	2		1		
	Other (Tech Writer)	4				
	Training Support	25	3	3	3	***12.00%***
	Category Total;	***31***	***3***	***4***	***3***	***9.68%***
	Grand Total;	***3330***	***659***	***204***	***174***	***5.23%***

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Skill Matrix

Skill	# IT	# of Pos	% Vac for skill	% Vac Overall
COBOL	431	94	21.81%	14.26%
ORACLE	160	47	29.38%	7.13%
Technical Leads/Analysts	207	44	21.26%	6.68%
Desktop Support	194	40	20.62%	6.07%
Computer Operators	231	38	16.45%	5.77%
Windows NT	168	37	22.02%	5.61%
Help Desk	209	32	15.31%	4.86%
Project Management	142	32	22.54%	4.86%
NATURAL	76	22	28.95%	3.34%
Novell Netware	77	17	22.08%	2.58%
MVS	68	15	22.06%	2.28%
Data Network Infrastructure	84	15	17.86%	2.28%
Voice Network Infrastructure	73	14	19.18%	2.12%
Hardware	45	13	28.89%	1.97%
Visual Basic	55	10	18.18%	1.52%
Windows 95	70	10	14.29%	1.52%
Other (IST)	32	9	28.13%	1.37%
UNIX	56	8	14.29%	1.21%
Other (Budgets/Contracts)	17	8	47.06%	1.21%
Other (Assembler)	31	7	22.58%	1.06%
Email Software	57	7	12.28%	1.06%
HTML	50	7	14.00%	1.06%
Other (TCP/IP)	26	7	26.92%	1.06%
Other (Data Guidance)	47	7	14.89%	1.06%
MS Access	53	7	13.21%	1.06%
VMS	15	6	40.00%	0.91%
Other (Telephone)	5	5	100.00%	0.76%
Other (HP Network)	4	5	125.00%	0.76%
Other (Turbo Image)	4	5	125.00%	0.76%
ADABAS	25	5	20.00%	0.76%
Other (PowerHouse)	1	5	500.00%	0.76%
C++	39	5	12.82%	0.76%
Other (Data Processing Mgr)	39	4	10.26%	0.61%
PowerBuilder	29	4	13.79%	0.61%
JAVA	15	4	26.67%	0.61%
Other (Adm)	15	4	26.67%	0.61%
TCP/IP	25	4	16.00%	0.61%
Other (ARC INFO)	18	4	22.22%	0.61%
Security	41	4	9.76%	0.61%
Other (PL1)	8	4	50.00%	0.61%
Other (Novell Netware)	15	3	20.00%	0.46%
Training Support	25	3	12.00%	0.46%
Informix	11	3	27.27%	0.46%
Other (EDL)	17	3	17.65%	0.46%
Unisys	28	3	10.71%	0.46%
CLIPPER	14	2	14.29%	0.30%
Sybase	11	2	18.18%	0.30%
Other (HP/MPE)	12	2	16.67%	0.30%
Other (SQL)	2	2	100.00%	0.30%
Other (Asset Mgmt)	5	2	40.00%	0.30%
Other (CICS)	13	2	15.38%	0.30%
DOS	21	2	9.52%	0.30%
Other (C)	3	1	33.33%	0.15%
Other (Analysis)	5	1	20.00%	0.15%
Other (Banyan Vines)	6	1	16.67%	0.15%
Other (AS/400)	2	1	50.00%	0.15%
Other (Sequel Server)	8	1	12.50%	0.15%
Other (Delphi)	3	1	33.33%	0.15%
Other (Ingres)	24	1	4.17%	0.15%
Other (Key Data Entry)	5	1	20.00%	0.15%
Other (PC Support)	10	1	10.00%	0.15%
FoxPro	10	1	10.00%	0.15%
Other (Data Warehouse)	4	1	25.00%	0.15%
SAS	12	1	8.33%	0.15%
MAPPER	13	1	7.69%	0.15%
Other (Telemetry)	2	1	50.00%	0.15%
Other (VSAM - RTC/FCO)	2	1	50.00%	0.15%

Skill	# IT	# of Pos	% Vac for skill	% Vac Overall
Other (Active X)				
Other (ABAP)	4			
Other (4D)	2			
DBASE	5			
Other (Guardian 90)	2			
Middleware	1			
DB2	41			
Other (Mainframe Support)	3			
Other (Windows 3.1)	1			
Other (Web/Internet dev)	1			
Other (Web Server)				
Other (VOS)	1			
Other (Traffic Mgt software)	2			
Other (Tech Writer)	4			
Other (SAS)				
Other (REXX)	1			
Other (RAMIS)				
Other (RACF)	2			
Other (Publications)	2			
Other (Filemaker)	3			
Other (Object Analysis & Dev)	1			
Other (AISA)	2			
Other (Macintosh)	4			
Other (Lotus Notes)				
Other (Informix)	1			
Other (IDMS)	8			
Other (FORTRAN)	6			
Other (Facilities)	1			
Other (Data Pad)				
Other (Data Administration)	2			
Other (BASIS)	2			
Other (Analysts)	1			
Other (AIX)	1			
Other (OS2)	1			
Grand Total;	***3330***	***659***		

Percentage	Reasons Employees Leave
# 1 - 41.1 %	Increase in pay
# 2 - 18.2 %	Opportunities for promotion
# 3 - 16.1 %	Limited career path and training
# 4 - 9.7 %	Desire to work with different technologies
# 5 - 7.3 %	Retirement
# 6 - 5.6 %	Other (Quality of life issue)
# 7 - 1.1 %	Moved geographically
# 8 - 0.5 %	Change of management
# 9 - 0.3 %	Cost of living too high

Total responses for 'Reason Employees Leave' was 620.

Percentage	Reasons Positions Remain *Vacant*
# 1 - 50.0 %	Unable to find required skill levels
# 2 - 32.5 %	Cannot offer competitive salaries
# 3 - 12.8 %	Slow hiring process
# 4 - 2.0 %	No eligible list available
# 5 - 1.0 %	Salary savings are required
# 6 - 0.7 %	Candidates indicate cost of living too high
# 7 - 0.6 %	Minimum qualifications too high
# 8 - 0.4 %	Reorganization Plans

Total responses for 'Reasons Positions Remain Vacant' was 696.

Appendix G: Training and Bonus Cost Estimations

Estimated Cost of Increasing the Investment in Training

Num. of Emp.	Yearly Payroll with Current Salaries Including Benefits	Yearly Payroll with 10% Increase Including Benefits	Current Estimated Training Expenditures @ 2.9% of Current Payroll	Training Cost @ 5% of Increased Payroll	Training Cost @ 8.5% of Increased Payroll	Additional Cost to Achieve 5% Training Level	Additional Cost to Achieve 8.5% Training Level
6616	$ 408,639,317	$ 449,503,249	$ 11,850,540	$ 22,475,162	$ 38,207,776	$ 10,624,622	$ 26,357,236

Estimated Cost of Implementing a Retention Bonus Program

Num. of Emp.	15% of Employees Receive Bonus	Total Salary Expense for 15% of Employees After 10% Increase With Benefits	Total Cost of Bonus Program @ 15% of Salary for 15% of Employees	Bonus Program Cost as a % of total Payroll Including Benefits
6616	992	$67,425,487	$ 10,113,823	2.25%
Num. of Emp.	**10% of Employees Receive Bonus**	**Total Salary Expense for 10% of Employees After 10% Increase With Benefits**	**Total Cost of Bonus Program @ 10% of Salary for 10% of Employees**	**Bonus Program Cost as a % of total Payroll Including Benefits**
6616	662	$44,950,325	$ 4,495,032	1.00%